Clear-Com®
COMMUNICATION SYSTEMS

WBS-670/680 Wireless Intercom Systems

Raising Performance

Frequency-agile UHF wireless intercom systems

Whether you're adding to a wired intercom system or creating a stand-alone wireless communications system, the WBS-670 and WBS-680 wireless intercoms are excellent choices. Combining frequency agility, audio clarity, powerful features, and roadworthiness with ease-of-use, these systems will extend the reach of your communications system in live theatre and performance, studio and mobile television production, industrial and aerospace applications, or wherever full-duplex wireless communications are required.

WBS-670 Single-Channel Wireless

The WBS-670 supports up to four full-duplex wireless beltpacks with its 1RU base station. Multiple stations may be used together for larger productions, tied together via the party-line intercom channel. The WTR-670 wireless beltpack features a low-profile on/off/volume control and a momentary latching talk button. Rugged detachable antennas are easily field-replaceable. The integral LCD window shows channel and frequency information, and allows the programming of beltpack channels and functions.

The simple base station front panel with its backlit LCD screen gives total control over frequency and beltpack selection, as well as control over the input and output level to an attached party-line or digital matrix intercom and an auxiliary in and out. If desired, a headphone may be connected to the front panel to communicate with the wireless beltpacks and the connected wired intercom system.

The rear panel features 3-pin XLR loop-through connectors for one channel of party-line intercom, an RJ-45 connector for direct connection to a digital intercom port, and a pair of auxiliary connectors. Screw-on TNC connectors for the base station transmitter and receiver sections are fitted with a pair of efficient half-wave co-linear antennas, or a variety of external antennas may be used. The WBS-670 is compatible with virtually all wired party-line and matrix intercom systems.

WBS-680 Two-Channel Wireless

Like the WBS-670, the WBS-680 supports up to four beltpacks per base station. This system adds the ability to connect the wireless beltpacks, via the base station, to two channels of wired intercom – party-line, digital matrix, or one of each. A variety of different communication routings are activated from the beltpacks, with each beltpack user having limited or full control.

The WTR-680 beltpack front panel provides a channel A/B selector button, allowing the user to talk and listen to either wired intercom channel A or wired intercom channel B. The WTR-680 beltpack allows the user to listen and talk on either or both of the two intercom channels. A "wireless talk around" button places the user's voice on the wireless- only bus, unheard by those on the wired intercoms. In addition, the beltpacks have a "stage announce" button, which when activated places the user's voice off the intercom line and onto an auxiliary output with associated relay on the base station – for paging and announcements.

The WBS-680 adds another wired intercom connector section on the rear panel, plus a stageannounce output and relay contact. Front panel controls and indicators give control and status information about all of these communication connections. Also, a base station link connector permits the "wireless talk around" to be shared among base stations.

Frequency-agile UHF Operation
The WBS-670 and WBS-680 operate in selected frequency bands between 518 – 740 MHz. These bands are each divided into 740 distinct frequencies at 25 kHz intervals.

Adjustable Transmitter Power
The base station transmitter has a high-power setting of 100 mW (WBS-670 is 50mW), a low-power setting of 10 mW for closer distance use. The beltpack transmitters have built-in sensing circuitry that drops the normal 50 mW output by 10 dB when close to the base station.

Pre-Selected Compatible Frequencies and Frequency Scan
System setup is easy with the 24 internal preselected and intermodulation-free frequency groups. Aided by the "scan" function, base stations and beltpacks can typically be coordinated and working together within minutes. Memory locations can be allocated so that particular sets of frequencies can be chosen, programmed and saved as a new preset.

Great Audio Quality and Range
The audio quality of the WBS-670 and WBS-680 is on par with that of a professional party-line or digital matrix intercom. Efficient antennas and sensitive receivers lead to excellent range for reliable use at a distance. A variety of remote antenna options enhance that range and help with difficult production environments.

Internal Audio Routing Options
Circuit paths on the WBS-680 main board may be wired, either internally or externally, to give variable-level dual-listen features to the beltpacks. Also base station internal switching can place auxiliary audio on beltpack channel B only, or on both A and B.

Rechargeable Battery Option
The battery pack will operate the beltpack in full-duplex mode for 14 hours with a set of alkaline batteries. The optional rechargeable NiMH (nickel metal hydride) batteries will give over 11 hours of continual use. A 4-bay charger keeps a system's worth of batteries at the ready.

WBS-670/680 Specifications

Overall

	WBS-680/WBS-670 Base Station	WTR-680/WTR-682/WTR-670 Beltpacks
RF Frequency Range	518-608 MHz, 614-740 MHz in 18 MHz TX and RX bands WBS-670 Only: 796-814 MHz Tx, Europe	518 - 608 MHz, 614 - 740 MHz in 18 MHz TX and RX bands WTR-670 Only: 844-862 MHz Tx, Europe
Power Requirement	100-240 VAC, 50-60 Hz, IEC receptacle	6 Alkaline "AA" Cells (NiMH optional)
Typical Battery Life Alkaline	N/A	14 Hours (Continuous duty with talk light on)
Typical Battery Life - Nickel Metal Hydride (1500 mAh)	N/A	11 Hours (Continuous duty with talk light on)
Current Draw	N/A	140 mA (Push-to-Talk, Talk On)
Temp Range	-4°F to 140°F (20°C to 55°C)	-4°F to 140°F (20°C to 55°C)
Dimensions	19.0" W x 1.72" H x 14.0" D (48.3 cm x 4.4 cm x 35.6 cm)	3.75" W x 5.05" H x 1.65" D (9.5 cm x 12.8 cm x 4.2 cm)
Weight	WBS-680: 7 lbs. 2 oz. (3.24 kg) WBS-670: 6 lbs. 15 oz. (3.15 kg)	16 oz. (0.454 kg) with batteries 15 oz. (0.425 kg) with batteries
Transmit Antenna	1/2 Wave (supplied), TNC Male Connector	1/4 Wave (supplied), Screw type
Receive Antenna	1/2 Wave (supplied), TNC Male Connector	1/4 Wave (supplied), Screw type
FCC ID	B5DM514	B5DM515
Frequency Response	300 Hz - 8,000 Hz	300 Hz - 8,000 Hz
Four-Wire Input	Level Adjustable (2 Vrms typical)	N/A
Four-Wire Output	Level Adjustable (2 Vrms typical)	N/A
Clear-Com® Intercom	Input/Output Level Adjustable (1 Vrms typical), Line Impedance 200 W	N/A
RTS® Intercom	Input/Output Level Adjustable (0.775 Vrms typical), Line Impedance 200 W	N/A
Telex® Intercom	Input/Output Level Adjustable (1 Vrms typical), Line Impedance 300 W	N/A
Auxiliary Input	Adjustable (2 Vrms typical)	N/A
Aulliary Output	Adjustable (2 Vrms typical into 600 W) (at rated deviation)	N/A
Stage Announce Output (WBS-680 only)	Internally Adjustable (1Vrms typical at rated deviation into 100K W)	N/A
Stage Announce Relay (WBS-680 only)	Dry contact, rated at 1Amp, 24 V Max. / N/A	N/A

Transmitter

	WBS-680/WBS-670 Base Station	WTR-680/WTR-682/WTR-670 Beltpacks
Type	Synthesized, 720 channels	Synthesized, 720 channels
Transmit Power	WBS-680: 100 mW max. (High), 10 mW (normal) WBS-670: 50 mW max. (High), 5 mW (normal)	WTR-680/WTR-670: 50 mW max. (auto-power reduction when close to base)
RF Frequency Stability	0.005%	0.005%
Modulation	FM, 40 KHz Deviation	FM, 40 KHz Deviation
Modulation Limiter	Peak-Responding Compressor	Peak-Responding Compressor
Modulation Frequency Range	300 Hz -8,000 Hz +-2 dB	300 Hz -8,000 Hz +-2 dB
Microphone Audio Input	30 W - 3,500 W	30 W - 3,500 W
Microphone Input Sensitivity	9 mV	9 mV
Radiated Harmonics & Spurious	Exceeds FCC specifications	Exceeds FCC specifications
FCC Acceptance	Type accepted under FCC Part 74	Type accepted under FCC Part 74

Receiver

	WBS-680/WBS-670 Base Station	WTR-680/WTR-682/WTR-670 Beltpacks
Type	Dual Conversion Superheterodyne, Synthesized, FM, 720 channels	Dual Conversion Superheterodyne, Synthesized, FM, 720 channels
RF Sensitivity	<0.7 mV for 12 dB SINAD	<0.7 mV for 12 dB SINAD
Signal-to-Noise Ratio	95 dB	95 dB
IF Selectivity	3 dB at 230 KHz	3 dB at 230 KHz
Image Rejection	70 dB or better	70 dB or better
Squelch Quieting	95 dB	95 dB
RF Frequency Stability	0.005%	0.005%
Distortion	<1% at full deviation	<1% at full deviation
Local Headset Output	40mW output into 600 W (1% distortion)	40mW output into 600 W (1% distortion)
FCC Acceptance	Notification under FCC Part 15	Notification under FCC Part 15

BC-800NM4 & BC-800NM Battery Chargers

Physical Characteristics	BC-800NM4	BC-800NM
Product Dimensions	13" (33cm) W x 1.7" (4.5cm) H x 7" (17.8cm) D	3" (7.62cm) W x 3.5" (8.89cm) H x 6" (15.24cm) D
Product Weight	4lbs (1.5kg) without battery adapters	1lb, 6oz (0.62kg)
Shipping Dimensions	11.5" (29.2cm) W x 10.5" (26.7cm) H x 18.5" (47cm) D	7" (17.8cm) W x 4.5" (11.43cm) H x 7" (17.8cm) D
Shipping Weight	10lbs, 9oz (4.8kg) with battery adapters, power supply, & rechargeable battery packs	2lbs, 10oz (1.2kg) with rechargeable battery pack & power supply
Material	ABS KJW fire retardant plastic, textured	ABS KJW fire retardant plastic, textured

Features	
Conditioning Cycle	Provides built-in maintenance capability to maximise battery cycle life.
Status Indicators	'Charging', 'Ready', 'Rejected' (dead battery), 'Conditioning Cycle' and 'Power LED' indicators make the BC-800NM simple and easy to use
Intelligent Charging	• Optimizes the battery • Battery can remain in the charger indefinitely • Maintains battery at peak capacity
Rapid Charge Capability	Charges in less than 2 hours

User Environment	
ESD	8KV continuous contact discharge; 15KV from air to all surfaces without contact
Humidity	95% relative humidity (non-condensing)
Drop	Unit functions normally after 4ft./1.2m drop to concrete
Storage Temperature	-40° to 122°F/-40° to 50°C
Operating Temperature	32° to 122 F/0° to 50°C
Power Supply	BC-800NM4: (Universal): 90V-230VAC, 50/60 Hz Output: 15 VDC, 5A or 24 VDC, 4.5A BC-800NM: (Universal): 90V-230VAC, 50/60 Hz Output: 15 VDC, 1.5A or 24 VDC, 1.3A
Safety Standards	Charger & power supply UL listed (UL 1950), CSA Certified (C 22.2 No. 223); Compliant to FCC part 15 Class A and CE Marking (Electromagnetic Compatibility) Directive 89/336/EEC and Low Voltage Directive 73/23/EEC; C15PR-22 Class B

Performance Characteristics	
Rapid Charging	Charges batteries to 90+% capacity in 2 hours or less
Complete Charge	Completes 100% capacity charge in 4 hours or less
Conditioning	Completely discharges a battery and automatically switches to charging mode
Maintenance Charge	Maintains the battery at optimum capacity indefinitely

User Interface	
Power LED	Indicates POWER to charging slot
Conditioning/Charging LED	Flashing indicates discharging process
Reject LED	Flashing indicates faulty battery
Conditioning/Charging LED	Solid indicates battery pack is being charged
Ready LED	Solid indicates battery charged

Americas and Asia-Pacific Headquarters
850 Marina Village Parkway, Alameda, California 94501, United States
Tel: 1.510.337.6600 Fax: 1.510.337.6699

Europe, Middle East and Africa
7400 Beach Drive, IQ Cambridge, Cambridge CB25 9TP, UK
Tel: +44 1223 815000 Fax: +44 1223 815099

China Office
The Vitec Group plc, Beijing Representative Office, Room 1806 Hua Bin Building,
No. 8 Yong An Dong Li, Jianguomenwai Ave, Chaoyang District, Beijing, P.R.China 100022
Tel: (008610)-8528-8748 Fax: (008610)-8528-8749

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